

## Lung transplantation for acute respiratory failure in rapidly progressive idiopathic pulmonary fibrosis

doi:10.1111/j.1432-2277.2005.00132.x

Lung transplantation is a well-established therapy for patients with progressive respiratory failure after having been screened for in- and exclusion criteria [1]. Mechanical ventilation, especially invasive ventilation has long been considered a strong relative contraindication. However, a limited number of patients have received a lung transplant while on the ventilator. These patients either passed the screening program, or developed primary graft failure. The outcome for these patients seems to be somewhat less favourable than for nonventilated patients [2,3]. We believe this is the first report of successful lung transplantation for patients developing ventilator dependent acute respiratory failure who were not previously screened. Some of the diseases considered suitable for lung transplantation may go unrecognised for some time or may develop very rapidly, and may present as acute respiratory failure, e.g. idiopathic pulmonary fibrosis (IPF). Also, such patients may become ventilator dependent after diagnostic procedures.

We describe three patients (Table 1) with histologically proven IPF with ventilator-dependent acute respir-

atory failure that underwent bilateral lung transplantation after a limited screening; these patients had their diagnostic work-up while ventilated. Lung transplantation for acute respiratory failure is feasible. This preliminary report does not allow firm conclusions but the postoperative course was comparable with that of patients in our regular lung transplant programme. Patients transplanted in this emergency setting were less well-evaluated and prepared, both physically and emotionally. The urgent need for a transplant might have influenced the team to accept donor organs that would not have been accepted for elective transplant purposes. These considerations might conceivably compromise outcome. On the contrary, patients on the ventilator receive immunosuppressants in an attempt to treat their alveolitis, and because of the acute onset and short duration of respiratory failure, their alimentary and general condition may still be relatively favourable. These patients might not yet have developed right ventricular, hepatic or renal failure. Also, they are less likely to be colonized with resistant pathogens. These factors might improve outcome.

The net effect of the ventilator-dependent setting is uncertain and many more patients need to be evaluated to draw conclusions. However, the immediate survival advantage for IPF patients is clear because nontransplanted ventilated patients have an ICU mortality of 100% [4]. Survival advantage is more obvious than for those in regular transplant programmes [5]. While we report here on a beneficial outcome of ventilated patients suffering from rapidly progressive IPF, one wonders if these results can be extrapolated to other diagnoses for which presently only elective transplantation is offered. Maybe conditions, for which transplantation is presently not deemed feasible, like acute respiratory distress syndrome (ARDS) with single organ failure or inhalation trauma, should also be offered lung transplantation. The scarcity of available donor organs urges a robust evaluation of costs and outcome. For fulminant hepatic failure, transplantation has become a standard treatment for patients meeting the

**Table 1.** Patient characteristics and outcome.

Patient	1	2	3
Gender	M	F	M
Age	56	51	47
Ventilation duration pre-ltx (days)	10	14	8
Immunosuppression pre-op	prednisolone/ azathioprine	prednisolone	prednisolone
Ventilation duration post-ltx (days)	4	34	14
ICU stay post-ltx (days)	6	39	16
Hospital stay post-ltx (days)	29	82	45
Follow-up (months)	12	10	9

ltx, lung transplantation.

criteria for transplantation. The outcome is only slightly less than in elective liver transplantation.

John H.J.M. Meertens,<sup>1</sup> Wim Van der Bij,<sup>2</sup>  
 Michiel E. Erasmus,<sup>3</sup> Tjip S. van der Werf,<sup>4</sup>  
 Tjark Ebels<sup>2</sup> and Jan G. Zijlstra<sup>4</sup>  
<sup>1</sup> Department of Anaesthesiology,  
 University Medical Centre Groningen,  
 Groningen, The Netherlands  
<sup>2</sup> Department of Pulmonology,  
 University Medical Centre Groningen,  
 Groningen, The Netherlands  
<sup>3</sup> Department of Cardiothoracic Surgery,  
 University Medical Centre Groningen,  
 Groningen, The Netherlands  
<sup>4</sup> Respiratory and Intensive Care,  
 Department of Internal Medicine,  
 University Medical Centre Groningen,  
 Groningen, The Netherlands

## References

1. Kerstjens HA, Groen HJ, Van der Bij W. Recent advances: respiratory medicine. *BMJ* 2001; **323**: 1349.
2. Baz MA, Palmer SM, Staples ED, Greer DG, Tapson VF, Davis DD. Lung transplantation after long-term mechanical ventilation: results and 1-year follow-up. *Chest* 2001; **119**: 224.
3. Meyers BF, Lynch JP, Battafarano RJ, *et al.* Lung transplantation is warranted for stable, ventilator-dependent recipients. *Ann Thorac Surg* 2000; **70**: 1675.
4. Stern JB, Mal H, Groussard O, *et al.* Prognosis of patients with advanced idiopathic pulmonary fibrosis requiring mechanical ventilation for acute respiratory failure. *Chest* 2001; **120**: 213.
5. Geertsma A, ten Vergert EM, Bonsel GJ, de Boer WJ, Van der Bij W. Does lung transplantation prolong life? A comparison of survival with and without transplantation. *J Heart Lung Transplant* 1998; **17**: 511.